
US 60|US 70|US 191 CORRIDOR PROFILE STUDY

FLORENCE JUNCTION (SR 79) TO DOUGLAS

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Draft Working Paper 3: Corridor Performance Goals and Objectives

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LIST OF ABBREVIATIONS

Abbreviation	Name	Abbreviation	Name
ADOT	Arizona Department of Transportation	P2P	Planning to Programming Linkage
ADT	Average Daily Traffic	PDI	Pavement Distress Index
AGFD	Arizona Game and Fish Department	POE	Port of Entry
AZER	Arizona Eastern Railroad	PSR	Pavement Serviceability Rating
BCA	Benefit Cost Analysis	PTI	Planning Time Index
CCTV	Closed Circuit Television	SHSP	Strategic Highway Safety Plan
DMS	Dynamic Message Signs	SOV	Single Occupancy Vehicle
F+I	Fatal and Incapacitating	SR	State Route
HPMS	Highway Performance Monitoring System	SWAP	State Wildlife Action Plan
I	Interstate	TAC	Technical Advisory Committee
LCCA	Life Cycle Cost Analysis	TTI	Travel Time Index
LRTP	Long Range Transportation Plan	TPTI	Truck Planning Time Index
MP	Milepost	TTTI	Truck Travel Time Index
MPD	Multimodal Planning Division	U.S.	United States
NBI	National Bridge Inspection	V/C	Volume to Capacity

1.0 INTRODUCTION

The Arizona Department of Transportation (ADOT) has identified eleven corridors considered essential in defining the overall health of the statewide transportation system, and is conducting a series of Corridor Profile Studies to plan for their desired performance. These Corridor Profile Studies will link the statewide plan, What Moves You Arizona, and the Planning to Programming Linkage (P2P), which are part of a framework designed to integrate the planning and programming processes in a transparent, defensible, logical, and reproducible way.

The eleven corridors are being evaluated within three separate groupings.

The first three studies (**Round 1**) began in spring 2014, and encompass:

- I-17: SR 101L to I-40
- I-19: I-10 to Mexico International Border
- I-40: California State Line to I-17

The second round (**Round 2**) of studies, initiated in spring 2015, include:

- I-8: California State Line to I-10
- I-40: I-17 to New Mexico State Line
- SR 95: I-8 to I-40

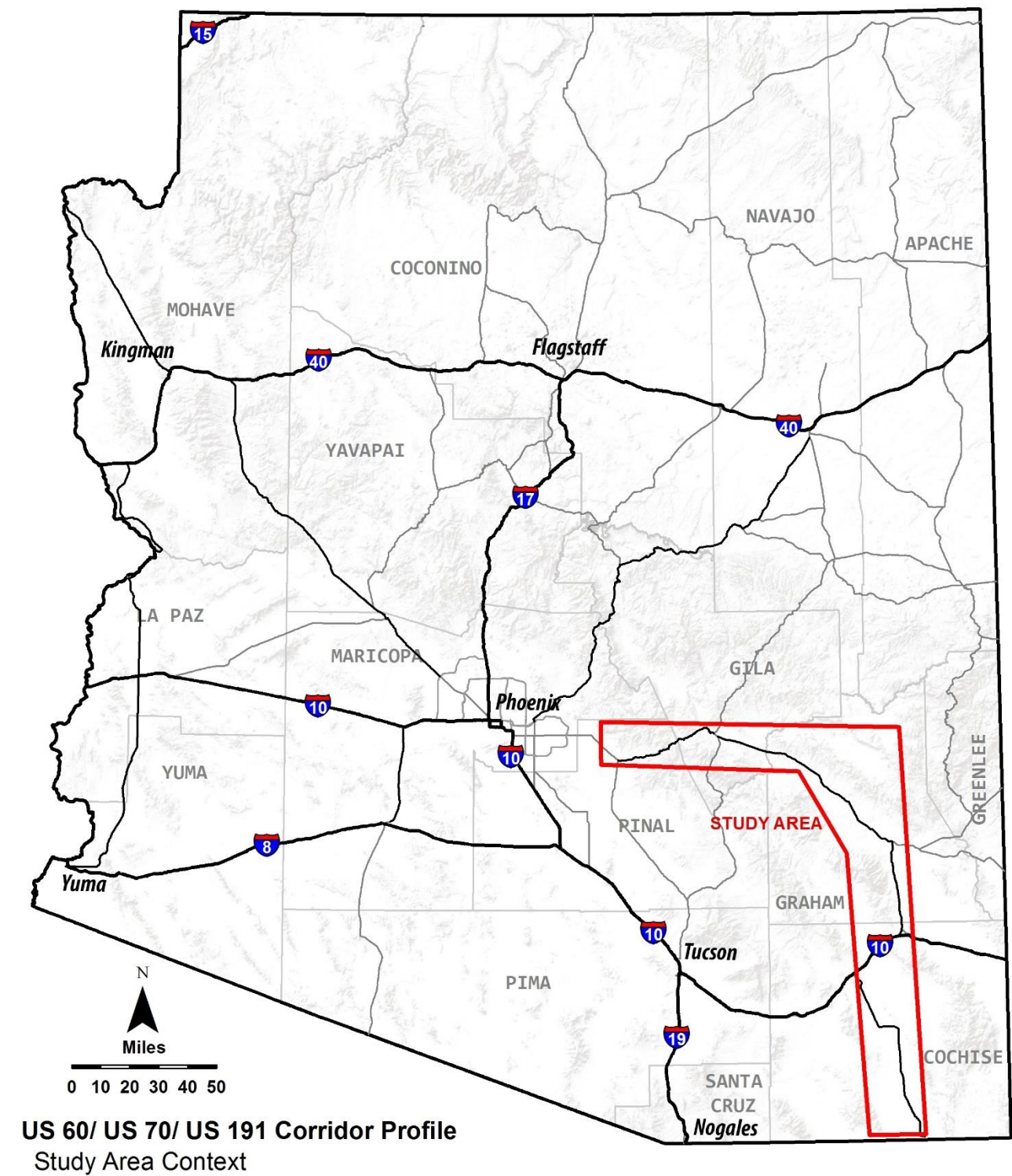
The third round (**Round 3**) of studies began in the fall of 2015 and include:

- I-10: California State Line to SR 85 and SR 85: I-10 to I-8
- I-10: SR 202L to New Mexico State Line
- SR 87/SR 260/SR 377: SR 202L to I-40
- US 60/US 70: SR 79 to US 191 and US 191: US 70 to SR 80
- US 93/US 60: Nevada State Line to SR 303L

The studies under this program will assess the overall health, or performance, of Arizona’s strategic highways. The Corridor Profile Studies will identify candidate projects for consideration in the Multimodal Planning Division’s (MPD) P2P project prioritization process, providing information to guide corridor-specific project selection and programming decisions.

US 60|US 70: SR 79 to US 191 and US 191: US 70 to SR 80 (**US 60|US 70|US 191**), depicted in Figure 1, is one of the strategic statewide corridors identified and the subject of this Corridor Profile Study (**Round 3**).

Figure 1: Study Area



1.1 Corridor Study Purpose

The purpose of the US 60|US 70|US 191 Corridor Profile Study is to define a comprehensive corridor planning and programming approach to help make system decisions to Arizona’s transportation primary network. This is to be achieved by measuring corridor performance and using the findings to inform improvement solutions. Life-cycle cost analysis and risk assessment are to be applied in formulating corridor recommendations. This Corridor Profile Study, along with similar studies for the other ten strategic corridors, will:

- Inventory past improvement recommendations
- Assess the existing performance based on quantifiable performance measures
- Define measureable performance goals and objectives for the future of the corridor
- Propose various solutions to improve corridor performance
- Identify specific projects that can provide quantifiable benefits in relation to the performance measures
- Prioritize the projects for future implementation

1.2 Corridor Study Goals and Objectives

The objective of this study is to identify a recommended set of potential projects for consideration in future construction programs, derived from a transparent, defensible, logical, and replicable process. The US 60|US 70|US 191 Corridor Profile Study will define solutions and improvements within the study limits that can be evaluated and ranked to determine which investments offer the greatest benefit to the corridor in terms of enhancing system performance.

The following goals have been identified as the outcome of this study:

- Link project decision-making and investments on key corridors to strategic goals
- Develop solutions that address identified corridor needs based on measured performance
- Prioritize improvements that cost-effectively preserve, modernize, and expand transportation infrastructure

1.3 Working Paper 3 Overview

The purpose of Working Paper 3 is to establish the performance goals, objectives and emphasis areas for the US 60|US 70|US 191 corridor. The framework is based upon the five performance areas used to characterize the corridor health: pavement, bridge, mobility, safety, and freight. The product of Working Paper 3 is the development of performance goals and objectives for US 60|US 70|US 191 against which baseline performance can be evaluated. Differences between baseline performance and performance goals and objectives provide the framework for defining corridor needs in the investment areas of preservation, modernization, and expansion.

1.4 Corridor Overview

The US 60|US 70|US 191 corridor links the Mexico border at the City of Douglas and the Phoenix metropolitan area to agricultural, mining and recreational activity in southeastern Arizona. In general, all three highways are two-lane facilities designed for relatively modest traffic volumes in a rural setting. At the same time, the corridor offers some unique benefits within the Arizona circulation system that could be leveraged for increased usage as the need arises.

US 191 provides a link between Mexico and Interstate 10 (I-10), the primary east-west interstate corridor along the southern states. As a result, US 191 serves as a major freight corridor for goods moving between Mexico and the United States. Similarly, the combination of US 191 and US 70 between I-10 and Globe offers a critical connection to mining and agricultural interests located in the greater Safford and Globe areas of Graham and Pinal Counties. US 60 between Globe and SR 79 links activities within the corridor to the major population and commerce center of the Phoenix metropolitan area.

The combination of all three highways (US 60 |US 70|US 191) creates a potentially significant alternative to I-10 and I-19 for travel in the eastern reaches of Arizona. A seamless connection among the three routes as a reliever could have major implications for improving international, interstate and intrastate trade along with opening access to financial and commercial distribution centers in the Phoenix area. It would also provide enhanced accessibility to tourist and recreational opportunities in southeastern Arizona.



US 60 approaching Queen Creek Tunnel in mountainous terrain



US 191 in Segment 2 showing the undulating roadway profile

1.5 Study Location and Corridor Segments

The US 60|US 70|US 191 Corridor Profile Study limits extend along US 191 from Douglas to I-10, continuing along US 191 from I-10 to Safford to the junction with US 70, then following US 70 from Safford, passing through the San Carlos Apache Reservation to Globe, and transitioning to the US 60 from Globe, through Superior to Florence Junction at the US 60|SR 79 intersection. Study segments were identified based on consideration of roadway, traffic and jurisdictional characteristics to allow for an appropriate level of analysis for segments of similar operating environments. Seventeen segments have been identified by the project team. Table 1 (Page 3) and the Corridor Map (Figure 2, Page 5) describe these segments, including general characteristics such as location, and average daily traffic (ADT).



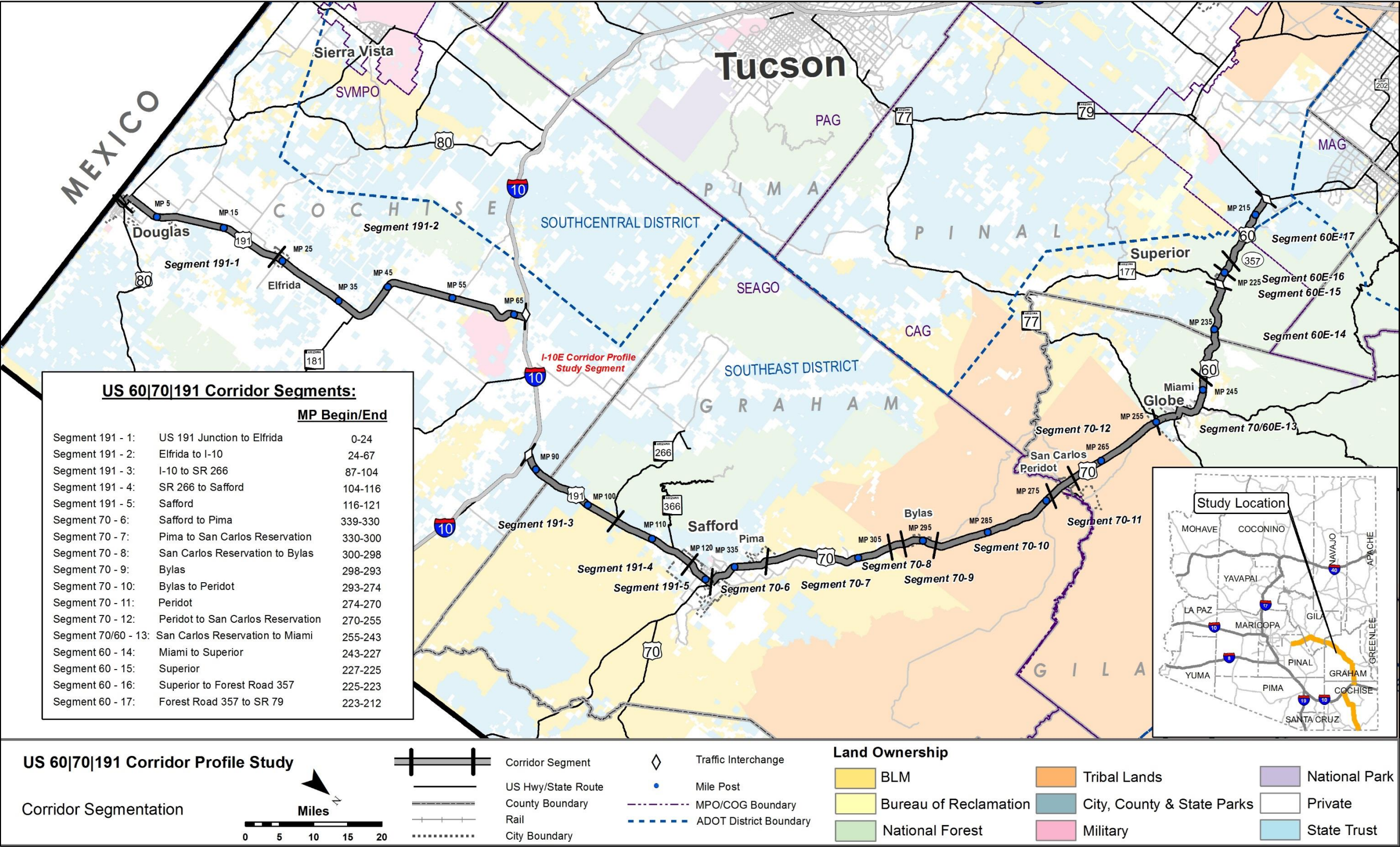
US 60 in Segment 14

Table 1: US 60|US 70|US 191 Corridor Segmentation

Segment	Route	Begin	End	Approximate Begin Milepost	Approximate End Milepost	Approximate Length (miles)	Through Lanes (NB/WB, SB/EB)	2014 Average Annual Daily Traffic Volume (vpd)	Character Description
191B – 1A	US 191	U.S. Mexico Border	US 191 Junction	0.0	1.0	1	2,2	8,000 – 13,000	This segment begins at the Douglas Port of Entry and continues north along US 191B (Pan American Avenue) until the intersection with US 191 (16th Street). The high traffic counts can be attributed to the international border crossing as well as the mixed industrial/commercial/residential uses along the route. This segment will not be included in this study as the facility is currently being turned over from ADOT to Douglas.
191-1	US 191	US 191B Junction	Elfrida	0.0	24.0	24	1,1	1,000 – 2,000	Starting from MP 0 along US 191, this segment is primarily rural in nature, but is the only route to the Bisbee-Douglas International Airport.
191-2	US 191	Elfrida	I-10	24.0	67.0	43	1,1	1,000 – 2,000	Beginning in Elfrida, a census-designated place, this segment connects smaller agricultural communities to each other and I-10.
191-3	US 191	I-10	SR 266	87.0	104.0	17	2,2	2,000	No known developments exist along this segment however, it does connect the Arizona State Prison at Fort Grant to I-10 via SR 266.
191-4	US 191	SR 266	Safford City Limit	104.0	116.0	12	1,1	3,000 – 7,000	Land along this segment is primarily owned by the Bureau of Reclamation and is therefore undeveloped. The segment begins at SR 266 and ends at approximately the southern limits of Safford. Traffic numbers in this segment increase due to the development south of Safford.
191-5	US 191	Safford City Limit	US 70 Junction	116.0	121.0	5	2,2	8,000 – 9,000	This segment starts at approximately the southern limits of Safford and ends at the junction with US 70. The segment is differentiated by jurisdiction and change in route along the corridor rather than any changes in terrain or traffic.
70-6	US 70	US 191 Junction	Pima	339.0	330.0	9	2,2	5,000 – 23,000	Beginning at the junction with US 191 in Safford and ending at the northern limit of Pima, this segment has very high traffic volumes which can be attributed to the higher density of surrounding communities and agricultural/mining operations. A large majority of the land abutting the route is privately owned.
70-7	US 70	Pima	San Carlos Apache Reservation	330.0	300.0	19	1,1	3,000 – 5,000	This segment connects the western limit of Pima to the eastern edge of the San Carlos Apache Reservation. A majority of the land abutting US 70 is privately owned and used for agricultural purposes. Milepost equation MP 314.21 Back = MP 325.31 Ahead occurs within this segment.
70-8	US 70	San Carlos Apache Reservation	Bylas	300.0	298.0	2	1,1	3,000	Beginning at the eastern limits of the San Carlos Apache Reservation, this short segment terminates at the eastern limits of Bylas.
70-9	US 70	Bylas	Bylas	298.0	293.0	5	1,1	3,000	Bylas is a census-designated place within the San Carlos Apache Reservation. The boundary of this segment was determined by the extent of development and not necessarily the jurisdictional limits.
70-10	US 70	Bylas	Peridot	293.0	274.0	19	1,1	3,000	This segment begins at the western extent of development in Bylas and extends to the eastern limits of development in Peridot. The segment is within the San Carlos Reservation and has low traffic volume.

Segment	Route	Begin	End	Approximate Begin Milepost	Approximate End Milepost	Approximate Length (miles)	Through Lanes (NB/EB, SB/WB)	2014 Average Annual Daily Traffic Volume (vpd)	Character Description
70-11	US 70	Peridot	Peridot	274.00	270.00	4	1,1	3,000	The segment starts at the new medical center at the eastern limits of Peridot and extends west to the high school. It is differentiated by jurisdiction rather than any changes in terrain or traffic.
70-12	US 70	Peridot	San Carlos Apache Reservation	270.00	255.00	15	1,1	4,000 – 7,000	Beginning at the Peridot High School and continuing to the western limit of the San Carlos Apache Reservation, this segment is differentiated by jurisdiction rather than any changes in terrain or traffic.
70 60-13	US 70 US 60	San Carlos Apache Reservation	Miami	255.00	243.00	12	2,2	3,000 – 28,000	Beginning at the western limits of the San Carlos Apache Reservation, this segment goes through the City of Globe, Claypool and Miami. Although this segment includes US 70 and US 60, there is no change in cross section therefore, the segment is differentiated by jurisdiction rather than any other changes. Higher traffic counts are due to the junction of US 60 and US 70 along with higher traffic counts and the proximity of large mines.
60-14	US 60	Miami	Superior	243.00	227.00	16	1,1	7,000 – 9,000	Beginning at the western limits of Miami and extending to the eastern limits of Superior, this segment bisects the Tonto National Forest. The high traffic volume can be attributed to the fact that this segment is the only route connecting the City of Superior to the Miami, Claypool and Globe area.
60-15	US 60	Superior	Superior	227.00	225.00	2	1,1	10,000	This segment starts and ends at approximately the eastern and western limits of Superior. This segment is differentiated by jurisdiction rather than any changes in terrain or traffic.
60-16	US 60	Superior	Forest Road 357	225.00	223.00	2	1,1	9,000	This segment is bounded by the Tonto National Forest and is differentiated by the number of thru east and west lanes rather than changes in terrain or jurisdiction.
60-17	US 60	Forest Road 357	SR 79	223.00	212.00	11	2,2	10,000	Although this segment is generally flat in nature, it is differentiated by the number of thru lanes, compared to 60-16. Beginning at State Forest Road 357, this segment terminates at the interchange with SR 79.

Figure 2: Segmentation Map



2.0 CORRIDOR FUNCTIONALITY

The US 60|US 70|US 191 corridor provides primary access to agriculture, mining and recreation areas in the southeastern part of Arizona. The corridor intersects I-10, which provides east and west access to and from the corridor. Beginning in Douglas, just north of the international border, the corridor extends northwest through Safford to Florence Junction, at the edge of the Phoenix metropolitan region, providing a key economic and recreational link in the region and state.

2.1 National Context

The southern and northern portions of the corridor both provide connectivity to the national transportation network. The southern portion of the corridor, US 191 south of I-10, provides a link between Mexico and I-10, the main east-west corridor along the southern states. As a result, US 191 serves as a major freight corridor for goods moving between Mexico and the US. The portion of the corridor north of I-10 provides connectivity between major mining and agricultural areas, linking to I-10 for national distribution.



2.2 Regional Connectivity

The combination of US 191 and US 70 between I-10 and Globe offers a critical connection to mining and agricultural interests located in the greater Safford and Globe areas of Graham and Pinal Counties. US 60 between Globe and SR 79 ties all the activities within the corridor, along with additional mining and recreational opportunities along US 60, to the major population and commerce center of the Phoenix metropolitan area.

2.3 Commercial Truck Traffic

The US 60|US 70|US 191 corridor serves as an important route for agricultural products grown in the Gila River Valley, and for large mining operations near Safford, Miami and Superior. According to ADOT’s 2014 Highway Performance Monitoring System (HPMS) data, the average daily commercial truck volumes along the corridor range from less than 100 to nearly 700 trucks per day. Segments with volumes over 250 daily commercial trucks include Segments 191-4 through 191-6, Segment 70/60E-13 through 60E-15 and Segment 60E-17. The high volume of trucks on these segments can be attributed to the large active mines in the Safford and Globe areas, as well as agricultural shipments. Due to the nature of truck traffic, oversize loads are common on this corridor.

The Douglas Port of Entry (POE) is located at the southern end of the corridor. In 2014, this crossing was the second busiest port in Arizona in terms of total number of loaded truck containers, accounting for approximately 9% of all truck crossings within the State. One inspection station is located adjacent to northbound US 191 at MP 1 and includes a weigh-in-motion scale. One permanent border checkpoint is located just north of Elfrida, on northbound US 191 in Segment 191-2. This location requires all vehicles to stop for inspection, which can create some delay with commercial truck traffic.

2.4 Commuter Traffic

Commuter traffic on US 60|US 70|US 191 occurs mostly within the urbanized areas of Safford, Globe and Superior, which are the primary economic centers along the corridor. According to the most recent traffic volume data maintained by ADOT, traffic volumes range from approximately 12,500 vehicles per day in the Safford area to approximately 8,000 vehicles per day in the Superior area. Other less urbanized areas, including Elfrida, Bylas and Peridot, average traffic volumes are between 1,000-4,000 vehicles per day.



According to the 2014 5-Year American Community Survey data from the US Census Bureau, 67% of the workforce in the City of Safford, 75% of the workforce in the City of Globe and 80% of the workforce in the Town of Superior drove alone for their daily commutes. Carpooling accounted for 12%-24% of daily commuters. As there are limited transit options in this area, less than 1% of daily commuters used public transportation as a means to get to work. The average commute travel time for these areas is 15-25 minutes. In the less populated areas of Bylas, Elfrida and Miami, there is a lower percentage of the population commuting to work alone, averaging 69%. In Bylas, 10% of commuters used public transportation. Nine percent of daily commuters in Elfrida and 12% of commuters in Miami carpoled. The average commute travel time for these less populated areas is similar to the larger urban areas, 15-25 minutes.

2.5 Recreation and Tourism

US 60|US 70|US 191 provides access to many recreational opportunities within the southeastern area of the state, including National Forest, wildlife areas, tribal recreation areas, and parks.

This study corridor provides access to both the Coronado and Tonto National Forests. The Coronado National Forest is broken up by the National Forest Service into different Ecosystem Management Areas, defined by each mountain range. The Dragoon, Pinaleno and Santa Teresa Ecosystem Management Areas are primarily accessed via US 191 or US 70. Segments 70/60E-13 through 60E-17 bisect the Tonto National Forest and can be used to access the Salt River and Superstition Mountains via SR 188.

There are numerous other natural areas and parks along the corridor. The Leslie Canyon National Wildlife Refuge is located east of US 191 between Douglas and Elfrida and encompasses over 2,700 acres. The Refuge was

established in 1988 to protect two native fish species of the Rio Yaqui watershed. Located west of US 191 between Douglas and Elfrida is the Whitewater Draw Wildlife Area, which is comprised of 1,500 acres and home to over 20,000 Sandhill Cranes during the winter. The park is open from October 15 through March 15.

Mount Graham is located southwest of Safford and is accessible via US 191. Recreational activities include hiking, rock climbing and cross country skiing. In addition to these opportunities, the Mount Graham is home to the University of Arizona Steward Observatory. The observatory was established in 1916 however construction was delayed due to World War I. By 1963, the original 36” diameter telescope was replaced with a smaller one due to the increased light pollution from the expanding Tucson area. There have been two large forest fires in recent years; fortunately, the observatory did not receive any damage.



Mount Graham and agricultural areas near Safford

Coolidge Dam and San Carlos Lake are located west of US 70 just south of Peridot. Built between 1924 and 1928, the Coolidge Dam was part of the San Carlos Irrigation Project and is responsible for irrigating 100,000 acres of agricultural land. Recreational uses within the area include fishing and boating on San Carlos Lake and hiking/biking on a 13 mile route along the dam’s access road.

The Apache Gold Casino and Resort in Globe is located along Highway. Owned by the San Carlos Apache Tribe the casino includes 600 slot machines, and 200-seat bingo hall, a golf course, 145-room resort with a conference center and an RV park.

The Boyce Thompson Arboretum and State Park is located off of US 60 in Superior. Founded in the 1920’s, the park is Arizona’s oldest and largest botanical garden encompassing 323-acres and includes over three miles of paths and trails.

In addition to the recreational amenities already mentioned, there are numerous trailheads along the corridor which are accessible through informal pull off areas.

2.6 Multimodal Uses

Besides commuter and freight traffic, as previously discussed, the US 60 US 70 US 191 corridor also accommodates alternative modes of transportation. The following section will discuss the existing multimodal options connecting communities along the corridor to each other and the surrounding region.

2.6.1 Freight Rail

The Arizona Eastern Railroad (AZER) extends from Miami to Lordsburg, New Mexico and Clifton to Lordsburg. The line from Miami to Lordsburg follows the Gila River until Bylas, then parallels US 70 into the Safford area, extending from Segment 191-5 through US 70/60E-13. There are three at grade crossings along the corridor. The crossings are located at US 191 near MP 121 in Safford, and MP 246 and MP 247 near Miami. Commodities transported include copper, chemicals, and agricultural and forest products.

There is one additional at grade rail road crossing along the corridor. The Magma Arizona Railroad crosses US 60 near MP 215.

2.6.2 Passenger Rail

The “Copper Spike Extension”, which traveled from Globe to the Apache Gold Casino Resort on the San Carlos Indian Reservation, was previously used for passenger train service. In 2011, ownership of the line transferred and the line was abandoned

2.6.3 Bicycles/Pedestrians

Cyclists may use state highways unless specifically prohibited, although a majority of the corridor has an effective shoulder width of less than 10 feet on either side. Only Segments 191-3 and 60E-17 have shoulder widths greater than 10 feet. Sidewalks are located along portions of the corridor within the urbanized areas. A pedestrian bridge at Fort Thomas provides a grade separated crossing of US 70. Additionally, within the areas of Bylas and Peridot, pedestrian facilities are not continuous on both sides of the roadway and drainage features create discontinuity in the informal, unpaved pedestrian network in these areas. Also, fencing along the roadway in Bylas and Peridot limits pedestrian crossing opportunities, although there are breaks in the fencing. Unpaved trails can also be found along the corridor and are served by informal pullouts.



2.6.4 Bus/Transit

Within the study area there are limited public transit opportunities. There are two local public transportation service providers along the US 60|US 70|US 191 corridor. The San Carlos Apache Nnee Bich’o Nii Public Transit Service provides buses between Safford and Globe with stops in Thatcher, Pima, Fort Thomas, Bylas, Peridot and Globe. There are three routes with an additional Casino Employee Shuttle. Fares range from \$2.00-\$10.00 round trip. The second service provider is the Cobre Valley Community Transit which serves Miami, Globe and unincorporated portions of Gila County. There are two routes between Miami and Globe, operating Monday through Friday 6:30am to 6:00pm. One way fares are \$1.00. The transit provider also offers a Dial-a-Ride service with fares ranging from \$1.00-\$4.00, depending on distance.

While existing public transportation service providers may currently be limited, several recent planning documents and studies have identified the need to increase intercity and intracity public transit options along the corridor.

No Greyhound or Amtrak stations are located along the corridor. Private shuttle service provides transportation from Safford to Willcox, Benson, Tucson International Airport and Phoenix Sky Harbor Airport

2.6.5 Aviation

Municipal airports along the corridor are located in Douglas, Safford, San Carlos, and Superior. The Bisbee Douglas International Airport located along US 191 in Douglas is owned by Cochise County and averages 54 aircraft operations per day. Thirty percent of daily operations are military-related and the remainder is general aviation. The Safford Regional Airport is located northeast of the corridor within Safford city limits. The airfield averages 38 aircraft operations per day. The San Carlos Apache Airport is located along US 70 in Globe. It is owned by the San Carlos Apache tribe and averages 36 aircraft operations per week. The Superior Municipal Airfield is located along US 60 near the western boundaries of the town. The airfield averages 200 aircraft operations per year.

2.7 Traveler Amenities

Along the US 60|US 70|US 191 corridor ADOT operates four rest areas. The Douglas Rest Area is located at the southwest corner of US 191 and SR 80 at MP 0. The Safford Park Rest Area is located along the east side of US 70 at MP 338. The third rest area is the Bylas Rest Area along the west side US 70 at MP 296. The fourth rest area is the Superior Rest Area located along the east side of US 60 at MP 226 and serves the eastbound traffic. There are also a number of informal pullouts along the corridor.

There is one closed circuit television (CCTV) camera located along US 70 east of Globe to monitor traffic, as well as one dynamic message sign in the same vicinity currently in design.

2.8 Tribes

Segments 70-8 through 70-12 bisect the San Carlos Apache Reservation.

2.9 Jurisdictions, Population Centers, and Major Traffic Generators

As shown in Figure 2, the corridor crosses multiple jurisdictions and land holdings throughout Cochise, Graham, Gila and Pinal Counties. A majority of the land directly abutting the corridor is privately owned. In the vicinity of the corridor, but not immediately adjacent to it, there are significant Bureau of Reclamation, State Trust and National Forest lands.

2.9.1 Population Centers

The major population centers within the US 60|US 70|US 191 corridor are centered around the urbanized areas of Douglas, Safford, Globe and Superior. Table 2 provides a summary of the U.S. Census population for the communities along the corridor. The local municipalities saw little change in population between 2010 and 2014, where several of these municipalities actually decreased in population during the same timeframe. At the county level, the population shift was more noticeable, especially for Cochise and Pinal County. The populations in the communities along the corridor fluctuate significantly with market demands related to mining and agriculture activities. Looking at the projected 2040 population, Douglas, Safford and Bylas will experience the greatest growth. During the same time period, Cochise and Pinal County will also see a large population shift. However, the growth is not focused in the areas along the study corridor.



Table 2: Current and Future Population

Community	2010 Population	2015* Population	Projected 2040 Population	% Change 2010-2040	Total Growth
Cochise County	131,346	134,166	173,377	32%	42,031
Douglas	17,378	16,974	20,447	18%	3,069
Elfrida	459	285	-	-	-
Graham County	37,220	38,569	51,887	39%	14,667
Safford	9,566	9,627	12,006	26%	2,440
Pima	2,387	2,428	3,171	33%	784
Bylas	1,962	2,069	2,909	48%	947
Peridot	973	1,026	1,443	48%	470
Gila County	53,565	54,148	58,735	10%	5,170
San Carlos	4,038	4,059	4,220	5%	182
Globe	7,533	7,544	8,092	7%	559
Miami	1,837	1,837	1,837	0%	0
Pinal County	376,369	414,999	934,939	148%	558,570
Superior	2,835	2,952	3,830	35%	995

Source: U.S. Census, Arizona Department of Administration – Employment and Population Statistics

2.9.2 Major Traffic Generators

Along the corridor, major traffic generators are related to mining and agriculture activities, as well as recreation and local commuter traffic in the urbanized areas of Douglas, Safford, Globe and Superior. Outside of the study area, major traffic generators include the Douglas Port of Entry, which generates significant freight traffic that utilizes US 191 to access I-10. Traffic generated from agricultural activities fluctuates seasonally. Mining related traffic experiences significant fluctuations as mining activity varies based on the global price of copper.

There are currently operational mines in Superior, Globe-Miami, and north of Safford, with plans for increases in mining activity in the vicinity of Superior. These mining activities generate traffic related to employment, and induced activity related to the increase in population in the local communities. In some cases, shift workers may live temporarily in housing near the mine while their families live in another community, where the mine workers commute home on off days. Due to the shift work related to the mines, there are not typical peak-hour and weekday commute patterns. The mines also generate significant truck traffic, including oversized loads related to mining equipment.

2.10 Wildlife Linkages Considerations

The Arizona State Wildlife Action Plan (SWAP) provides a 10-year vision for the entire state, identifying wildlife and habitats in need of conservation, insight regarding the stressors to those resources, and suggested actions that can be taken to alleviate those stressors. Using the HabiMap Tool developed by Arizona Game and Fish Department (AGFD), which is an interactive database of the information included in the SWAP, the following wildlife considerations were identified in relation to the US 60|US 70|US 191 corridor:

- Wildlife waters are located to the north of US 60 near Superior and on both sides of US 191 between Safford and I-10
- Willcox Playa/Cochise Important Bird Area is located along the eastern side of US 191 from approximately MP 60 continuing north to I-10
- A majority of the US 60|US 70|US 191 corridor bisects allotments/pastures, except along US 70 on the San Carlos Reservation and along US 191 south of US 181
- State Land holdings exist within the corridor, primarily along US 191 between Safford and I-10
- US Forest Service Land is located along US 60 and US 70 between SR 79 and SR 77
- Potential Wildlife Linkages exist along US 60 between SR 79 and SR 77 and along US 191 between SR 366 and I-10
- The *Species and Habitat Conservation Guide* indicates sensitive habitats exist along the corridor except a portion of US 70 which bisects the San Carlos Reservation
- “Species of Greatest Conservation Need” are identified along the corridor except a portion of US 70 which bisects the San Carlos Reservation
- A moderate level of “Species of Economic and Recreational Importance” are identified along the corridor except a portion of US 70 that bisects the San Carlos Reservation

2.11 Transportation Assets

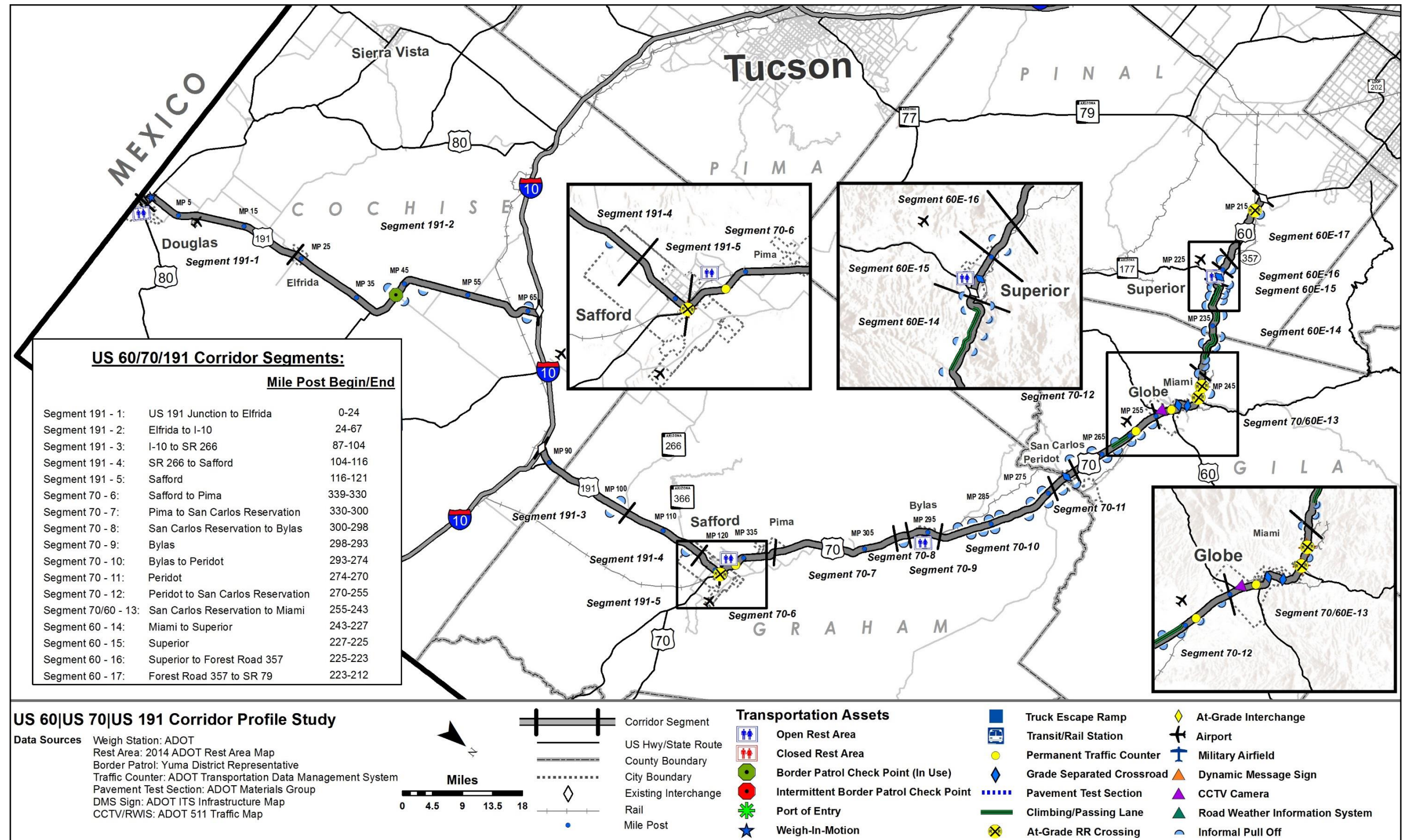
Corridor transportation assets are summarized in **Figure 3**. The majority of assets are located along the most densely populated portions of the corridor near the Safford and Globe areas. In addition to the one Border Patrol check point, one weigh-in-motion scale and four public rest stops already discussed, there are three permanent traffic counters along the corridor, located at MP 337 and MP 254 on US 70 and MP 252 on US 60. There is one short climbing/passing lane for eastbound traffic on US 70 in Segment 70-12, while Segment 60E-14 has numerous climbing and passing lanes for both directions. There are several grade-separated crossroads and at-grade railroad crossings along the corridor but they are primarily located near the urbanized areas.

2.12 Conclusion of Corridor Characteristics

The US 60|US 70|US 191 corridor links regionally important communities in the southwestern part of the state to Mexico, I-10 and the Phoenix metropolitan area. The southern portion of US 191 connects the Douglas Port of Entry to I-10 and is an important route for freight. The corridor is also a vital route between the large mining and agricultural activities within the Gila River Valley and the rest of the state. The Transportation Assets Map (**Figure 3**) shows key features that are available to the travelling public today.

Limited public transportation services are offered within the region. These services either don’t span the entire corridor or are only operated on a limited basis. While population changes have not been significant over the last few years, numerous transportation studies have identified a need for intercity and intracity transit services along the corridor.

Figure 3: Transportation Assets



3.0 SUMMARY OF CORRIDOR BY PERFORMANCE AREA

A system to establish baseline corridor performance was developed through a collaborative process with ADOT, the Technical Advisory Committee (TAC) and the Corridor Teams for the profile studies. Baseline performance was evaluated using primary and secondary performance measures to define the corridor health and identify locations warranting further analysis to define needs. Corridor needs constitute the difference in baseline corridor performance compared to performance objectives.

The performance system consists of five areas: Pavement, Bridge, Mobility, Safety, and Freight. For each of these performance areas, a primary measure – known as the Index – was defined along with a set of secondary measures that allows for a more detailed analysis of corridor performance. **Table 3** lists the primary and secondary measures that were evaluated for each of the five performance areas.

Working Paper 2 evaluated the overall corridor performance (as a weighted average by segment length) and individual segment performance in the five aforementioned areas. The primary and secondary performance measures were quantified where feasible. A scale for each measure was developed based on adopted ADOT thresholds, where applicable, or on statistical analysis of statewide datasets. The scaling is split into three levels, each of which is represented by a corresponding color. The scale levels are named “good” (green), “fair” (yellow), and “poor” (red), except that for measures based on a comparison to statewide averages (e.g., the Safety Performance Area) where the levels are called “above average” (green), “average” (yellow), and “below average” (red). Some of the secondary measures are “hot spots” that cannot be readily quantified at a segment or overall corridor level, so no scaling was developed for “hot spots”.

Good / Above Average Performance
Fair / Average Performance
Poor / Below Average Performance

The corridor weighted average ratings are summarized in **Figure 4**, which also provides a brief description of each performance measure. **Figure 5** shows the corridor and segment performance for each primary measure. The following sub-sections summarize the measured performance in each performance area according to the analysis findings documented in Working Paper 2.

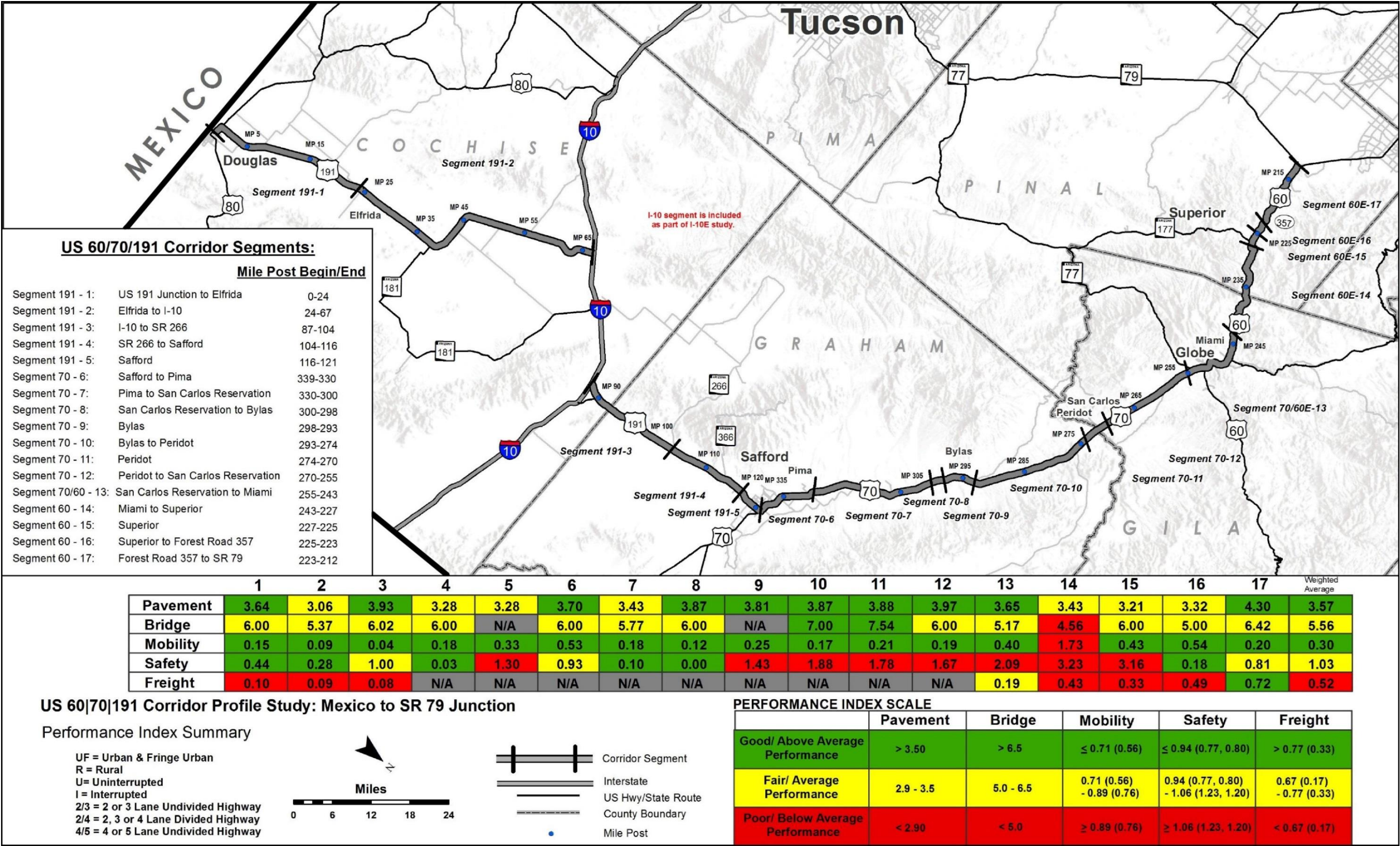
Table 3: Performance Measures

Performance Index	Primary Measures	Secondary Measures
Pavement	Pavement Index - based on combination of International Roughness Index and Cracking	<ul style="list-style-type: none"> Directional Pavement Serviceability Pavement Area Failure Pavement Hot Spots
Bridge	Bridge Index - based on Deck Rating, Substructure Rating, or Superstructure Rating	<ul style="list-style-type: none"> Bridge Sufficiency Rating Functionally Obsolete Bridge Rating (Lowest) Bridge Hot Spots
Mobility	Mobility Index - based on combination of Current Volume to Capacity (V/C) and Future V/C	<ul style="list-style-type: none"> Existing Directional Peak Hour Volume/Capacity Future Volume/Capacity Directional Travel Time Index (TTI) Directional Planning Time Index (PTI) Road Closure Frequency Percent Non-Single Occupancy Vehicle (SOV) Trips Bicycle Accommodation
Safety	Safety Index - based on frequency of fatal and incapacitating injury crashes	<ul style="list-style-type: none"> Percent Strategic Highway Safety Plan Emphasis Areas Directional Safety Index Safety Hot Spots
Freight	Freight Index - based on Truck Planning Time Index	<ul style="list-style-type: none"> Directional Truck Travel Time Index (TTTI) Directional Truck Planning Time Index (TPTI) Road Closure Duration Bridge Vertical Clearance

Figure 4: Performance Summary

Pavement	Bridge	Mobility	Safety	Freight
<p>Pavement Index (PI): based on two pavement condition ratings from the ADOT Pavement Database. The two ratings are the International Roughness Index (IRI) and the Cracking Rating. The calculation of the Pavement Index uses a combination of these two ratings.</p>	<p>Bridge Index (BI): based on four bridge condition ratings from the ADOT Bridge Database. The four ratings are the Deck Rating, Substructure Rating, Superstructure Rating, and Structural Evaluation Rating.</p>	<p>Mobility Index (MI): an average of the current volume-to-capacity (V/C) ratio and the projected 2035 V/C ratio.</p>	<p>Safety Index (SI): combines the bi-directional frequency and rate of fatal incapacitating injury crashes, compared to crash occurrences on similar roadways in Arizona.</p>	<p>Freight Index (FI): a reliability performance measure based on the bi-directional planning time index for truck travel.</p>
<ul style="list-style-type: none"> ➤ Directional Pavement Serviceability – the weighted average (based on number of lanes) rating which measures the condition of the pavement in each direction of travel. ➤ Pavement Failure – the percentage of pavement area that is rated above the failure thresholds for IRI or Cracking, as established by ADOT Materials Group (IRI > 105 or Cracking > 15). 	<ul style="list-style-type: none"> ➤ Sufficiency – indicative of bridge sufficiency to remain in service. The factors that contribute to the Sufficiency Rating include structural adequacy and safety, serviceability and functional obsolescence, and essentiality for public use. ➤ % Functionally Obsolete – indicative of the percentage of deck area on bridges that is no longer functionally adequate for its current use, such as lack of shoulders or the inability to handle current traffic volumes. Functionally Obsolete does not directly relate to the structural adequacy. ➤ Bridge Rating – identifies the lowest rating on each segment. 	<ul style="list-style-type: none"> ➤ Directional Current V/C – the existing peak hour V/C ratio in both directions of the corridor. This measure provides an understanding of the directional operating characteristics of the corridor during the existing peak hour from a mobility congestion standpoint. ➤ Future V/C – a measure of the future 2035 V/C ratio that identifies how the corridor will operate in the future from a mobility congestion standpoint. ➤ Directional Closures – the average number of times a given location in the corridor was closed per mile in a specific direction of travel per year. ➤ Directional Travel Time Index (TTI) – the ratio of the average peak period travel time to the free-flow travel time. The TTI represents recurring delay along the corridor. ➤ Directional Planning Time Index (PTI) – the ratio of the total travel time needed for 95 percent on-time arrival to free-flow travel time. The PTI represents non-recurring delay along the corridor. ➤ % Non-single Occupancy Vehicle Trips (Non-SOV) – represents the percentage of trips that are taken by vehicles carrying more than one occupant. ➤ Bicycle Accommodation – represents the percentage of roadway that is accommodating for bicycle travel. 	<ul style="list-style-type: none"> ➤ % SHSP Emphasis Area – the percentage of fatal and incapacitating crashes that involve at least one of the five Strategic Highway Safety Plan (SHSP) Emphasis Areas on a given segment compared to the statewide average percentage of crashes involving at least one of the five SHSP Emphasis Areas on roads with similar operating environments. ➤ Directional Safety Index – the combination of the directional frequency and rate of fatal incapacitating injury crashes, compared to crash occurrences on similar roadways in Arizona. ➤ % SHSP Crash Unit Types – the percentage of total fatal and incapacitating injury crashes that involves a given crash unit type (motorcycle, truck, non-motorized traveler) is compared to the statewide average percentage on roads with similar operating environments. 	<ul style="list-style-type: none"> ➤ Directional Truck Planning Time Index (TPTI) – the ratio of total travel time (for trucks only) needed for 95 percent on-time arrival to free-flow travel time. The TPTI represents non-recurring delay along the corridor. ➤ Directional Truck Travel Time Index (TTTI) – the ratio of the average peak period travel time (for trucks only) to the free-flow travel time. The TTTI represents recurring delay that occurs along the corridor. ➤ Directional Closure Duration – the average time a given location in the corridor was closed per mile per year. ➤ Bridge Clearance – the minimum vertical clearance for all underpass structures within each segment as determined via the ADOT Bridge Database.

Figure 5: Performance Index Summary



3.1 Pavement

All segments on US 60|US 70|US 191, approximately 217 miles in total length, are rated as “Good” or “Fair” for the overall Pavement Index, which is comprised of the primary measures Pavement Serviceability Rating (PSR) (roughness rating) and Pavement Distress Index (PDI) (cracking rating). Segment 191-2 yielded the lowest Pavement Index and the lowest PDI (cracking) scores. Segments 191-2, 60E-14 and 60E-15 included several miles of failure hot spots, including 13 miles on US 191 between MP 24 and MP 67. Both excessive pavement roughness and cracking were evenly identified in Segment 191-2. In Segments 60E-14 and 60E-15, excessive roughness was observed.

Pavement Failure evaluation assesses the percentage of lane miles considered in failure throughout the corridor. Three segments exceed the 20% worse than average performance threshold. These include Segment 191-2 (30%), Segment 60E-14 (31%), and Segment 60E-15 (50%). It is important to note that Segment 60E-15 in Superior is only 2 miles in length, with MP 226 and MP 227 measuring excessive roughness.

3.2 Bridge

The majority of segments fall within the “Fair” performance rating for the Bridge Index, which consists of the deck, substructure, superstructure and structural ratings. The ratings ranged from 4.14 to 7.54 out of 9. A total of 51 structures were included in the evaluation.

Four bridges have been rated as structurally deficient, all of which are on US 60. At MP 227.71, the Queen Creek Bridge (No. 406) has deck, substructure, superstructure and structural evaluation ratings of 4. The Waterfall Canyon Bridge (MP 229.50, No. 328) has superstructure and structural evaluation ratings of 4. The poorest rated bridge is the Pinto Creek Bridge (No. 351) at MP 238.25, which has deck, substructure, superstructure and structural evaluation ratings of 4. At MP 249.64, the Pinal Creek Bridge (No. 266) has deck, substructure and structural evaluation ratings of 4. Segment 60E-14 has the poorest Bridge Index at a 4.14 rating. This is due to three bridges within the segment being structurally deficient.

Bridge Sufficiency ratings per segment range from “Good” to “Poor”. The weighted averaged values range from 36.03 to 93.91 out of 100. Two of the 17 analysis segments on the corridor exceed the threshold for “Poor” performance as Functionally Obsolete Bridges by current ADOT design standards. These include Segments 70/60E-13 (49% bridge area comprised of the Globe Viaduct) and 60E-15 (57% bridge area comprised of the Stone Avenue Overpass and Route 177 TI Underpass). Three bridges have multiple ratings of 5 for the deck, substructure, superstructure and structural evaluation.

Queen Creek Tunnel (MP 228.47, No. 407) is located on US 60 approximately 1.6 miles east of the SR 177 junction, within Segment 60E-14. This unique feature will require isolated consideration throughout the Corridor Profile Study process to include its contribution to corridor condition and needs. According to the National Bridge Inspection (NBI) data provided by the ADOT Bridge Group, the deck condition (N59) has a rating of 5. With this 5 (fair) rating, the tunnel will be considered a hot spot under bridge performance.

3.3 Mobility

The US 60|US 70|US 191 corridor rated in the “Good” threshold of the Primary Mobility Index, except for Segment 60E-14 which is rated “Poor” due to high V/C ratios caused by the mountainous grade (decreasing the overall throughput). The ratings are the same for existing peak hour traffic operations and future traffic operations as “Good”, with the exception of Segment 60E-16, which is rated “Fair” for future traffic operations. Two operating environments were utilized for evaluating Mobility, urban/fringe urban and rural.

Most of the corridor performed “Good” in measuring closures for travel time reliability. Segments 60E-14, 60E-15 and 60E-16 showed “Fair” performance in the westbound direction, Segment 70-12 showed “Fair” performance in the eastbound direction, and Segments 60E-14 and 60E-15 showed “Poor” performance in the eastbound direction, with Segment 60E-14 having the highest number of closures. Other secondary measures with “Fair” or “Poor” performance on some corridor segments included directional TTI, directional PTI, % non-SOV trips, and bicycle accommodation.

3.4 Safety

Overall, the Safety Index of the combined US 60|US 70|US 191 segments rated “Average” performance when compared to the statewide average within similar operating environments in terms of fatal and incapacitating injury (F+I) crashes. Half of the segments perform “above average” or “average” and the remaining eight are “below average performance” for the Safety Index. The safety performance evaluation utilized three operating environments for analysis; 2 or 3 lane undivided highway, 2, 3, or 4 lane divided highway and 4 or 5 lane undivided highway.

The average segment F+I crashes was 7.2. Four segments averaged higher crashes including Segment 70/60E-13 which had 36 crashes and 60E-14 which had 29. These segments included two crash hotspots in both directions, MP 227 to MP 229 and MP 246 to MP 249. Excluding these two segments, the average F+I crashes was 4. Segments 70-6 and 70|60E-13 performed below average in the Safety Index and top 5 emphasis areas Strategic Highway Safety Plan (SHSP).

3.5 Freight

The performance of freight mobility is overall “Poor” within US 60|70|191 the corridor. Segments 70|60E-13 and 60E-17 are the exceptions, performing within the “Fair” and “Good” scoring threshold. All of the segments show varied performance in the Freight Index, TTTI and TPTI. The TPTI measures “poor” for the majority of the corridor in both directions of travel. A majority of the segments show “Good” performance in the closure performance measure. Only Segments 70-12, 60E-14 and 60E-14 in the eastbound direction were rated as poor. Segments 60E-14 through 60E-16 rated as fair in the westbound direction. Two locations have vertical clearance restrictions that cannot be by-passed, including the Pinal SPRR Underpass in Segment 70|60E-13 and the Queen Creek Tunnel in Segment 60E-14.

4.0 CORRIDOR PERFORMANCE GOALS AND OBJECTIVES

US 60|US 70|US 191 is a primary transportation corridor in southeastern Arizona, serving both regional and local needs. This corridor provides direct access to Mexico through the Douglas, one of the two major Arizona Ports of Entry. As such, it supports the I-10 Key Commerce Corridor and provides a potential alternative route to I-10. In addition to its trade benefits, US 60|US 70|US 191 also serves mining, agricultural and recreational needs. Based on discussions with the primary stakeholders within the corridor, the performance goals for the US 60|US 70|US 191 corridor include:

- Support goals identified in the *What Move You Arizona* Long-Range Transportation Plan
- Provide a safe, reliable, and efficient connection for the communities along the corridor and freight movement
- Provide a safe and reliable route for recreational and tourist travel
- Preserve, modernize and expand highway infrastructure as needed to serve demand
- Provide an all-weather transportation facility
- Consider future land use when recommending infrastructure improvements since agricultural activities are transitioning to development activities
- Promote safety by implementing appropriate countermeasures, particularly in mountainous and rolling terrain

Statewide goals and performance measures were established by the ADOT Long-Range Transportation Plan (LRTP), 2010-2035, *What Moves You Arizona* through an extensive outreach program. The statewide goals relevant to the US 60|US 70|US 191 performance framework areas have been identified as part of Working Paper 3 efforts and coordinated with the corridor goals formulated for the five performance areas. **Table 4** shows the aligned statewide and US 60|US 70|US 191 goals.

Specific objectives have been developed for the US 60|US 70|US 191 corridor to meet these performance goals, as detailed below:

- Reduce current and future congestion in the Safford and Globe areas
- Reduce delays from non-recurring events and incidents to improve reliability
- Reduce delays and restrictions to freight movement to improve reliability
- Improve travel time reliability (including impacts on motorists due to freight traffic)
- Improve pavement ride quality
- Maintain structural integrity of bridges
- Reduce delays to freight movement
- Improve travel time reliability
- Reduce fatal and serious injury crashes
- Improve bicycle accommodation

4.1 Stakeholder Input

The corridor team met with stakeholders at two separate meetings, one at the Southeast District and one at the Southcentral District, to discuss the US 60|US 70|US 191 performance evaluation results in Working Paper 2 and to develop the performance goals and objectives for the corridor. A summary of these meetings related to the performance goals, objectives and emphasis areas is provided in the subsequent section. Information provided on the US 60|US 70|US 191 performance evaluation was documented in Section 5.0 of Working Paper 2.

Southeast District Meeting: Held on March 8, 2016 and included participants from the ADOT Southeast District, ADOT Multimodal Planning Division, and the consultant team.

Southcentral District Meeting: Held on March 1, 2016 and included participants from the ADOT Southcentral District, ADOT Multimodal Planning Division, and the consultant team.

The attendees contributed to the development of goals and objectives as listed in Section 4.0 and provided the following insight.

- Most critical to the corridor is safely maintaining mobility for all motorists, including freight, as alternative routes are nonexistent for some corridor destinations and lengthy for others.
- Preserving and modernizing infrastructure is viewed as the predominant future need.
- Throughout the US 70 Gila Valley communities, the changing land use will need to be considered as part of implementing future improvements. Agricultural use will continue to transition to commercial and residential development.
- Mining activity within the corridor fluctuates with the economy. Increased activity impacts the corridor performance and needs.
- Recent funding shortfalls have resulted in minimal or no improvement to mainline shoulders. Moving forward, it is desirable to consider pavement condition of shoulders for safety and multimodal purposes.
- Mobility, Freight, and Safety are focus performance areas

4.2 Performance Emphasis Areas

Based on agency input, the performance of Mobility, Safety and Freight were identified as “emphasis areas” for the US 60|US 70|US 191 corridor. These three emphasis areas will warrant more attention and focus than the other performance areas for this corridor. Subsequently, the corridor-wide weighted average performance objectives for Mobility, Safety, and Freight are identified with a higher standard than the corridor-wide weighted average performance objectives for other performance areas.

4.3 Performance Objectives

Considering the corridor performance goals and identified “emphasis areas”, performance objectives were developed. The objectives are to be measured using the primary and secondary measurements for each performance area, with the aim of achieving a desired level of performance. The desired performance is based on scale levels for the overall corridor and for each corridor segment.

The performance objectives for the five performance areas are shown in **Table 4**. The colors shown in **Table 4** represent the corresponding level of performance as described earlier, with green indicating “good” or “above average” performance and yellow indicating “fair” or “average” performance. Good or above average performance is the desired performance objective for the corridor weighted average of each primary measure for performance areas designated as “emphasis areas”. Fair or average performance is the desired objective for all segments in all performance areas and for the corridor weighted average for performance areas that are not emphasis areas.

Table 4: Performance Goals and Objectives

ADOT Statewide LRTP Goals	US 60 US 70 US 191 Corridor Goals	US 60 US 70 US 191 Corridor Objectives	Performance Area	Performance Measure	Performance Objective		
					Corridor Average	Segment	
Improve Mobility and Accessibility Support Economic Growth	Improve mobility and connectivity Provide a safe and reliable route for recreation and tourist travel to/from Mexico, Southern California and Southern Arizona destinations Provide safe, reliable and efficient connection to all communities along the corridor to permit efficient regional travel	Reduce current and future congestion in the urbanized areas	Mobility <i>(Emphasis Area)</i>	Mobility Index	Good	Fair or Better	
				Existing Directional Peak Hour V/C		Fair or Better	
				Future V/C		Fair or Better	
				Closure Frequency		Fair or Better	
		Reduce delays from non-recurring events and incidents to improve reliability		Travel Time Index		Fair or Better	
				Planning Time Index		Fair or Better	
				Percent Non-SOV Trips		Fair or Better	
	Improve bicycle accommodation	Percent Bicycle Accommodation			Fair or Better		
		Reduce delays and restrictions to freight movement to improve reliability Provide a safe, reliable and efficient freight route between Arizona, California and Mexico		Freight <i>(Emphasis Area)</i>	Freight Index	Good	Fair or Better
	Travel Time Index					Fair or Better	
	Planning Time Index				Fair or Better		
	Closure Duration				Fair or Better		
	Bridge Vertical Clearance				Fair or Better		
Preserve and Maintain the State Transportation System	Preserve and modernize highway infrastructure	Maintain structural integrity of bridges	Bridge	Bridge Index	Fair or Better	Fair or Better	
				Bridge Sufficiency Rating		Fair or Better	
				Bridge Rating		Fair or Better	
				Percent Deck Area on Functionally Obsolete Bridges		Average or Better	
		Improve pavement ride quality	Pavement	Pavement Index	Fair or Better	Fair or Better	
				Pavement Serviceability		Fair or Better	
				Percent Pavement Area Failure		Average or Better	
Enhance Safety and Security		Maintain highway security within the right-of way	Reduce fatal and serious injury crashes	Safety <i>(Emphasis Area)</i>	Safety Index	Above Average	Average or Better
					Percent SHSP Emphasis Areas		Average or Better
					Directional / Safety		Average or Better

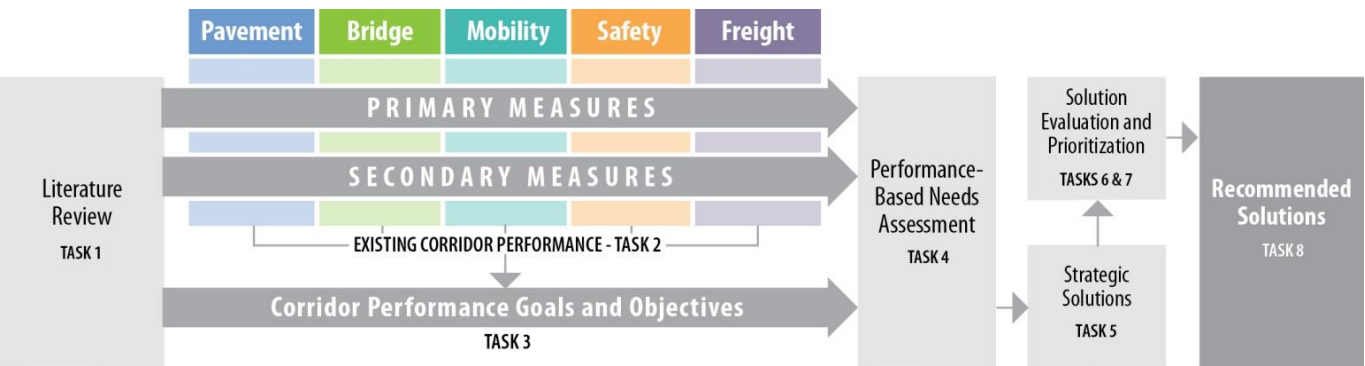
5.0 NEXT STEPS

The overall Corridor Profile Study process is shown in **Figure 6**. The process consists of eight tasks where the final results will provide candidate projects for P2P prioritization and inform the LRTP Update.

The next step in the US 60|70|191 the Corridor Profile Study will be to conduct a needs assessment based on the relationship between the existing performance and the desired performance (Task 4). The corridor team will compare measured performance completed in Task 2 to the Corridor Objectives and Goals identified in this Working Paper 3 (Task 3). A “need” is identified when measured performance does not meet the expected performance objective.

The next deliverable, Working Paper 4, will report the findings from a needs analysis to help identify strategic improvements. The needs analysis will take a detailed look at the available data sets for each of the primary and secondary performance measures (including the “hot spots”). Following the needs assessment, “solution sets” will be developed to address the identified needs and improve performance (Task 5).

Figure 6: Profile Study Process



- TASK 1** assesses work already completed in the corridor through a literature review
- TASK 2** determines existing corridor performance based on data collected for the identified performance areas (pavement, bridge, mobility, safety and freight)
- TASK 3** develops long-term goals and objectives that define how the corridor can be expected to function, its primary purpose and performance emphasis areas
- TASK 4** assesses corridor needs by comparing existing conditions to expected performance
- TASK 5** formulates strategic candidate solutions to raise performance levels throughout the corridor with a focus on elevated need areas
- TASK 6** uses life-cycle cost analysis and benefit-cost analysis to determine the most cost effective solution option
- TASK 7** determines performance effectiveness and risk factors for use in prioritizing solutions
- TASK 8** describes the recommended solutions using pre-scoping reports for future use in programming projects